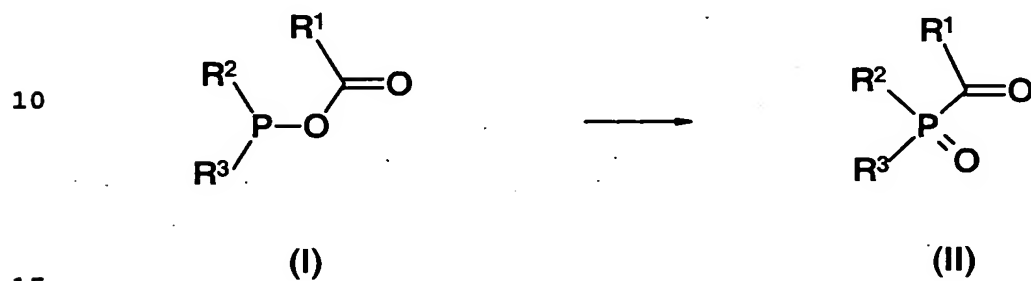


We claim:

1. A process for the preparation of aromatic acylphosphine oxides (II), which comprises converting aromatic carboxyphosphines (I) to the acylphosphine oxides (II),



in which

20. R^1 is $\text{C}_6\text{-C}_{12}$ -aryl or a five- to six-membered aromatic heterocycle having oxygen, nitrogen and/or sulfur atoms, where said radicals can in each case be substituted by aryl, alkyl, aryloxy, alkyloxy, heteroatoms and/or heterocycles, and
- 25 R^2 and R^3 independently of one another are $\text{C}_1\text{-C}_{18}$ -alkyl, $\text{C}_2\text{-C}_{18}$ -alkyl optionally interrupted by one or more oxygen and/or sulfur atoms and/or one or more substituted or unsubstituted imino groups, $\text{C}_2\text{-C}_{18}$ -alkenyl, $\text{C}_6\text{-C}_{12}$ -aryl, $\text{C}_5\text{-C}_{12}$ -cycloalkyl,
- 30 $\text{C}_1\text{-C}_{18}$ -alkoxy or a five- to six-membered heterocycle having oxygen, nitrogen and/or sulfur atoms, where said radicals can in each case be substituted by aryl, alkyl, aryloxy, alkyloxy, heteroatoms and/or heterocycles, also a metal, a
- 35 group $-\text{O}^-$ -cation $^+$ or halogen.
2. A process as claimed in claim 1, which is carried out in the absence of a catalyst at a temperature above 100°C or in the presence of a catalyst above 80°C .

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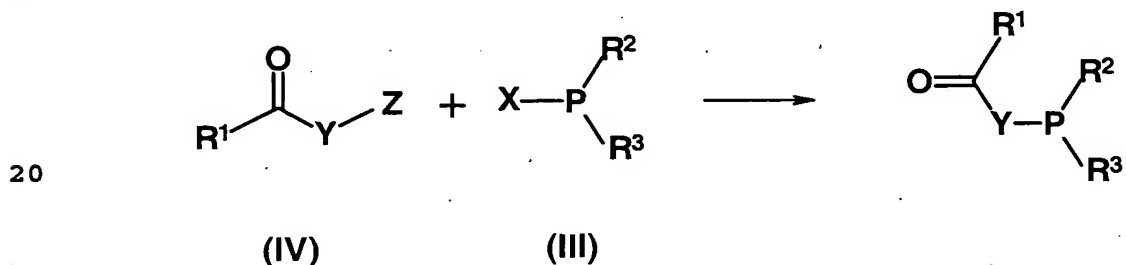
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3. A process as claimed in claim 2, wherein 5 to 100 mol% catalyst, based on the starting material (I), are used.
4. A process as claimed in claim 3, wherein the catalyst is
5 chosen from the group consisting of Friedel-Crafts catalysts, Lewis acidic ionic liquids, nucleophilic catalysts, acid chlorides, acid anhydrides, alkyl halides, halogens, Arbusov catalysts, catalysts with simultaneous Lewis-acidic and Lewis-basic properties and transition metals with high
10 affinity to phosphorus.
5. A process as claimed in any of the preceding claims, wherein R¹ is chosen from the group consistig of phenyl, tolyl, xylyl, α -naphthyl, β -naphthyl, 2-, 3- or 4-chlorophenyl, 2,6-
15 or 2,4-dichlorophenyl, 2,4,6-trichlorophenyl, 2-, 3- or 4-methylphenyl, 2,6- or 2,4-dimethylphenyl, 2,4,6-trimethylphenyl, 2-, 3- or 4-ethylphenyl, 2,6- or 2,4-diethylphenyl, 2-, 3- or 4-isopropylphenyl, 2-, 3- or 4-tert-butylphenyl, 2-, 3- or 4-methoxyphenyl, 2,6- or
20 2,4-dimethoxyphenyl, 2,6- or 2,4-diethoxyphenyl, methylnaphthyl, 2,6-dimethylphenyl, 2,4,6-trimethylphenyl, 2,6-dimethoxyphenyl, 2,6-dichlorophenyl, 4-bromophenyl, 2- or 4-nitrophenyl, 2,4- or 2,6-dinitrophenyl, 4-dimethylaminophenyl, 4-acetylphenyl, 2- or 3-furyl, 2- or
25 3-thiophenyl, 2- or 3-pyrryl and dimethylpyrryl.
6. A process as claimed in any of the preceding claims, wherein R² and R³ independently of one another are chosen from the group consisting of 2,4,4-trimethylpentyl, benzyl,
30 p-chlorobenzyl, 2,4-dichlorobenzyl, p-methoxybenzyl, methoxy, ethoxy, n-propyloxy, isopropyloxy, n-butyloxy, isobutyloxy, sec-butyloxy, tert-butyloxy, 6-hydroxy-1,4-dioxohexyl, 9-hydroxy-1,4,7-trioxononyl, 12-hydroxy-1,4,7,10-tetraoxododecyl,
35 6-methoxy-1,4-dioxohexyl, 9-methoxy-1,4,7-trioxononyl, 12-methoxy-1,4,7,10-tetraoxododecyl, 6-ethoxy-1,4-dioxohexyl, 9-ethoxy-1,4,7-trioxononyl, 12-ethoxy-1,4,7,10-tetraoxododecyl, 8-hydroxy-1,5-dioxooctyl, 12-hydroxy-1,5,9-trioxooctyl,
40 16-hydroxy-1,5,9,13-tetraoxohexadecyl, 10-hydroxy-1,6-dioxodecyl, 15-hydroxy-1,6,11-trioxopentadecyl, vinyl, 1-propenyl, allyl, methallyl, 1,1-dimethylallyl, 2-butenyl, 2-hexenyl, 2-phenylvinyl, 2-methoxyvinyl, 2-ethoxyvinyl, 2-chlorovinyl,
45 phenyl, tolyl, xylyl, α -naphthyl, β -naphthyl, 4-diphenyl, 2-, 3- or 4-chlorophenyl, 2,4- or 2,6-dichlorophenyl, 2,4,6-trichlorophenyl, 2-, 3- or 4-methylphenyl, 2,4- or

2,6-dimethylphenyl, 2,4,6-trimethylphenyl, 2-, 3- or 4-ethylphenyl, 2,4- or 2,6-diethylphenyl, 2-, 3- or 4-isopropylphenyl, 2-, 3- or 4-tert-butylphenyl, 2-, 3- or 4-methoxyphenyl, 2,4- or 2,6-dimethoxyphenyl, 2-, 3- or 4-ethoxyphenyl, methylnaphthyl, chloronaphthyl, ethoxynaphthyl, 2,6-dimethylphenyl, 2,4,6-trimethylphenyl, 2,4- or 2,6-dimethoxyphenyl, 2,4- or 2,6-dichlorophenyl, 2- or 4-nitrophenyl, 2,4- or 2,6-dinitrophenyl, 4-dimethylaminophenyl, 4-acetylphenyl, 2,4,6-trimethylbenzoyl, 2,6-dimethoxybenzoyl and 2,6-dichlorobenzoyl.

7. A process for the preparation of carboxyphosphines, which comprises carrying out a conversion according to

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in which

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R^1 , R^2 and R^3 have the meanings given in claim 1,

X is halogen, pseudohalogen, un-, mono- or disubstituted nitrogen or sulfuryloxy,

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Y is oxygen, sulfur, un- or monosubstituted nitrogen and

Z is hydrogen, or an equivalent of a cation

at a temperature between 50 and 100°C.

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8. A process as claimed in claim 7, wherein the reaction is carried out in the presence of an auxiliary base which, protonated as a salt, forms $\text{R}^1(\text{CO})\text{Y}^-$ with the anionic compounds of (IV), or a salt with a melting point below 160°C with X^- .

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9. A process as claimed in claim 8, wherein the auxiliary base is chosen from the group consisting of 3-chloropyridine, 4-dimethylaminopyridine, 2-ethyl-4-aminopyridine, 2-methylpyridine (α -picoline), 3-methylpyridine (β -picoline), 4-methylpyridine (γ -picoline), 2-ethylpyridine,

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2-ethyl-6-methylpyridine, quinoline, isoquinoline, pyridine,
1-C₁-C₄-alkylimidazole, 1-methylimidazole,
1,2-dimethylimidazole, 1-n-butylimidazole,
1,4,5-trimethylimidazole, 1,4-dimethylimidazole, imidazole,
5 2-methylimidazole, 1-butyl-2-methylimidazole,
4-methylimidazole, 1-n-pentylimidazole, 1-n-hexylimidazole,
1-n-octylimidazole, 1-(2'-aminoethyl)imidazole,
2-ethyl-4-methylimidazole, 1-vinylimidazole,
2-ethylimidazole, 1-(2'-cyanoethyl)imidazole and
10 benzotriazole.

10. The use of carboxyphosphines obtainable by a process as
claimed in one of claims 7 to 8 for the preparation of acyl
phosphine oxides (II) as claimed in claim 1.

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11. The use of acylphosphine oxides of the formula (II) as in
claim 1, obtainable as claimed in any of claims 1 to 6 as
photoinitiator in radiation curing.

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